

## OPTICAL SIGNAL AMPLIFIER

### Abstract of the Disclosure

An optical signal amplifier includes a light source, a depolarizer, and a gain medium that transfers energy from a pump beam output from the depolarizer to the optical signal. The depolarizer may include one or more birefringent optical fibers which support two polarization modes, a fast mode and a slow mode. The light propagates in the fast mode at a higher velocity than the light propagates in the slow mode so as to impart phase delay as the light propagates in the birefringent optical fibers, thereby at least partially depolarizing the beam. A method for using the amplifier with different types of transmission fibers enables the matching of depolarizers with relatively high percentage of degree of polarization, depending on fiber type, while staying below polarization dependent gain requirements.

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